

Amendment to the Claims

Please amend the claims as follows. This listing of claims replaces all prior versions and listings of claims in the application. Claims 1, 3, 4, 8, 10, 11, 19, and 20 have been amended.

Listing of Claims

1. (Currently Amended) A method for endovascular occlusion of a blood vessel area, comprising:

advancing a catheter percutaneously and transluminally until a distal opening of said catheter is located at a blood vessel area to be occluded;

providing a wire body comprising a front end, a back end, and a section connecting said front end and said back end, wherein said section is substantially straight in a predetermined unloaded shape ~~a relaxed condition~~, a length of said section being larger than a diameter of said blood vessel area;

inserting said wire body into said catheter, said section of said wire body being substantially in said predetermined unloaded shape ~~relaxed condition~~ within said catheter;

mechanically pushing said wire body forward through said catheter until said front end of said wire body is pushed out of said distal opening of said catheter;

abutting a first wall portion of said blood vessel area with said front end of said wire body, thereby column loading said wire body and frictionally locking said front end against said first wall portion; ~~and~~

continuing to mechanically push said wire body out of said distal opening of said catheter, thereby curving said section of said wire body toward a second wall portion of said blood vessel ~~area~~; area, wherein said section of said wire body frictionally locks against said second wall portion of said blood vessel area when said section is column loaded between said first

and second wall portions due to said wire body being mechanically pushed forward, thereby forming a portion of said wire body crossing said blood vessel area that is and frictionally locked to said first wall portion and said second wall portion due to said column loading without a change in temperature of said wire body;

physically separating said wire body from said catheter by pushing an entirety of said wire body out of said distal opening of said catheter;

occluding blood flow in said blood vessel area to be occluded using said section of said wire body frictionally locked between said first and second wall portions, wherein said blood flow is occluded after said wire body is physically separated from said catheter and after said catheter is removed from said blood vessel area to be occluded; and

forming a thrombus at a location of said wire body after said wire body is physically separated from said catheter and after said catheter is removed from said blood vessel area to be occluded.

2. (Original) The method according to claim 1, wherein said blood vessel area to be occluded is an aneurysm.

3. (Currently Amended) The method according to claim 2, wherein said front end of said wire body is curved in said predetermined unloaded shape relaxed condition at least 120° and said back end of said wire body is curved in said predetermined unloaded shape relaxed condition at least 120°.

4. (Currently Amended) The method according to claim 1 [[4]], further comprising repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, when said section is column loaded between due to said wire body being mechanically pushed forward, said

section thereby forming curvatures in said complexly curved shape, the curvatures varying ~~which vary~~ continuously without breakpoints.

5. (Original) The method according to claim 1, wherein said blood vessel area to be occluded is a vessel lumen.

6. (Previously Presented) The method according to claim 5, further comprising retracting said catheter between said abutting and said continuing steps, wherein a free length of said section of said wire body extends between said front end of said wire body and said distal opening of said catheter, said continuing step thereby column loading said section as said wire body is mechanically pushed.

7. (Original) The method according to claim 6, further comprising repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.

8. (Currently Amended) The method according to claim 7, wherein said front end of said wire body in said predetermined unloaded shape ~~relaxed condition~~ is formed as a spiral with a decreasing helix diameter in the direction of said front end, a largest helix diameter corresponding generally to said diameter of said blood vessel area, and said length of said section of said wire body being at least six times said diameter of said blood vessel area.

9. (Original) The method according to claim 1, further comprising repeating said continuing step until said section of said wire body has

assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.

10. (Currently Amended) The method according to claim 1, wherein said front end of said wire body is curved in said predetermined unloaded shape ~~relaxed condition~~ at least 120°.

11. (Currently Amended) The method according to claim 1, wherein said back end of said wire body is curved in said predetermined unloaded shape ~~relaxed condition~~ between 140° and 340°.

12. (Original) The method according to claim 1, wherein said length of said section of said wire body is at least 20 mm.

13. (Original) The method according to claim 1, wherein said length of said section of said wire body is at least 90 mm.

14. (Original) The method according to claim 1, wherein said wire body is made of a thread extending helically around a center line of said wire body.

15. (Original) The method according to claim 1, wherein said wire body is further characterized by the absence of occlusion hairs, an inner lumen of said catheter being sized substantially to said wire body.

16. (Original) The method according to claim 15, wherein said wire body is made of a thread extending helically around a center line of said wire body.

17. (Original) The method according to claim 1, wherein said section of said wire body has a spring constant of $c = P/e$ measured on a 50 mm long portion of said wire body, P being an axially acting applied force measured in N and e being a change of length measured in mm, said spring constant being in the interval of $0.0015 \text{ N/mm} \leq c \leq 0.08 \text{ N/mm}$.

18. (Original) The method according to claim 1, wherein said front end of said wire body has a largest external diameter ranging from 2 to 13 mm, said length of said section of said wire body ranges from 30 and 300 mm, and said back end of said wire body has a largest external diameter ranging from 4 to 8 mm.

19. (Currently Amended) A method for endovascular occlusion of an aneurysm, comprising:

advancing a catheter percutaneously and transluminally until a distal opening of said catheter is located at an aneurysm to be occluded;

providing a wire body comprising a front end, a back end, and a section connecting said front end and said back end, said front end and said back end being curved and said section being substantially straight in a predetermined unloaded shape ~~a relaxed condition~~, a length of said section being larger than a diameter of said aneurysm, wherein said wire body is made of a thread extending helically around a center line of said wire body and said wire body is characterized by the absence of occlusion hairs, an inner lumen of said catheter being sized substantially to said wire body;

inserting said wire body into said catheter, said section of said wire body being substantially in said predetermined unloaded shape ~~relaxed condition~~ within said catheter;

mechanically pushing said wire body forward through said catheter until said front end of said wire body is pushed out of said distal opening of said catheter;

abutting a first wall portion of said aneurysm with said front end of said wire body, thereby column loading said wire body and frictionally locking said front end against said first wall portion;

continuing to mechanically push said wire body out of said distal opening of said catheter, thereby curving said section of said wire body toward a second wall portion of said aneurysm, wherein said section frictionally locks against said second wall portion when said section is column loaded between said first and second wall portions due to said wire body being mechanically pushed forward, thereby forming a portion of said wire body crossing said aneurysm and frictionally locked to said first wall portion and said second wall portion due to said column loading; and

repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said aneurysm and frictionally locks against wall portions of said aneurysm when said section is column loaded between said wall portions due to said wire body being mechanically pushed forward, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints and ~~without a change in temperature of said wire body~~;

physically separating said wire body from said catheter by pushing an entirety of said wire body out of said distal opening of said catheter;

occluding blood flow in said aneurysm with said wire body having a complexly curved shape that is frictionally locked between said wall portions, wherein said blood flow is occluded after said wire body is physically separated from said catheter and after said catheter is removed from said aneurysm; and

forming a thrombus at a location of said wire body after said wire body is physically separated from said catheter and after said catheter is removed from said aneurysm.

20. (Currently Amended) A method for endovascular occlusion of a blood vessel lumen, comprising:

advancing a catheter percutaneously and transluminally until a distal opening of said catheter is located at a blood vessel lumen to be occluded;

providing a wire body comprising a front end, a back end, and a section connecting said front end and said back end, said front end in a predetermined unloaded shape ~~a relaxed condition~~ being formed as a spiral with a decreasing helix diameter in the direction of said front end, a largest helix diameter corresponding to a diameter of said blood vessel lumen, and said section being substantially straight in said predetermined unloaded shape ~~relaxed condition~~, a length of said section being at least six times said diameter of said blood vessel lumen, wherein said wire body is made of a thread extending helically around a center line of said wire body and said wire body is characterized by the absence of occlusion hairs, an inner lumen of said catheter being sized substantially to said wire body;

inserting said wire body into a proximal end of said catheter, said catheter thereby loading said wire body into a substantially straight condition;

mechanically pushing said wire body forward through said catheter until said front end of said wire body is pushed out of said distal opening of said catheter;

abutting a first wall portion of said blood vessel lumen with said front end of said wire body, thereby frictionally locking said front end against said first wall portion;

retracting said catheter to create a free length of said section of said wire body extending between said front end of said wire body and said distal

opening of said catheter; ~~said continuing step thereby column loading said section as said wire body is mechanically pushed;~~

continuing to mechanically push said wire body out of said distal opening of said catheter [[,]] thereby column loading said section as said wire body is mechanically pushed and thereby curving said section of said wire body toward a second wall portion of said blood vessel lumen, wherein said section frictionally locks against said second wall portion due to said column loading of said section, thereby forming a portion of said wire body crossing said blood vessel lumen and frictionally locked to said first wall portion and said second wall portion; and

repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel lumen and frictionally locks against wall portions of said blood vessel lumen due to said column loading of said section, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints;

physically separating said wire body from said catheter by pushing an entirety of said wire body out of said distal opening of said catheter;

occluding blood flow in said blood vessel lumen to be occluded using said wire body having a complexly curved shape that is frictionally locked between said wall portions, wherein said blood flow is occluded after said wire body is physically separated from said catheter and after said catheter is removed from said blood vessel lumen to be occluded; and

forming a thrombus at a location of said wire body after said wire body is physically separated from said catheter and after said catheter is removed from said blood vessel lumen to be occluded.

21. (Previously Presented) The method according to claim 1, wherein said steps of mechanically pushing said wire body comprises pushing on a guidewire coupled to said back end of said wire body.

22. (Previously Presented) The method according to claim 1, wherein said steps of mechanically pushing said wire body comprises pushing on a stylet abutting said back end of said wire body, said stylet being unconnected to said wire body.